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**DETAILED ACTION*****Response to Arguments***

1. Applicant's arguments filed 6/19/2003 have been fully considered but they are not persuasive.
2. In response to applicant's arguments, the recitation power tool has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).
3. In response to Shramo fails to disclose a slotless wound stator, Shramo discloses a slotless wound stator 24 including a winding form that encircles the rotor assembly 20 (example fig. 1). Regarding to Shramo doesn't disclose the use of a wire form; Shramo discloses how to deform coil-winding 22 in order to flatten partly the coil segments, which make up respective coil phases, can be wrapped in a circumferential fashion. Accordingly, relative to the illustration of FIG. 10, the coil winding 22 is collapsed in the width dimension of the winding form 62 (the wiring form is preferably a rectangular shape – column 6, line 26-27) by rotating the bottom corners 65a, 65b of coil segment A.sub.1, 67a, 67b of coil segment B.sub.1, etc. of the coil winding 22 counterclockwise. Partially rotated and collapsed coil winding 22 and form 62 are shown in FIG. 11. At this point the partially collapsed form 62 preferably is removed from

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within the coil winding 22. However, if the coil winding 22 has adequate dimensional integrity, the form 62 may be removed prior to the collapsing step (column 8, lines 5-30).

4. In response to Isaacson doesn't disclose applying a seal to the interface such that the air gap is sealed. Isaacson disclose the use of a seal member (25 and 26) such that air gap between the plurality of coils and rotor is sealed for the purpose of eliminating the need to axially introduce the rotor into the stator bore.

5. In response to Herman doesn't show a plurality of coils enclosing the rotor assembly. Herman disclose, as show in Fig. 4, the loops of each winding 30 are arranged so that each coil 30 surround the rotor magnet 22.

*Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 30, 32-33, 36, and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Herman et al. U.S. Patent No. 5,907,205.

Herman disclose a brushless DC Motor comprising a rotor assembly (22) including a rotatable shaft (24) having a permanent magnet (22) affixed to the shaft (24), a plurality of coils (30) including end turns that enclose the rotor assembly (22) such that the rotor assembly (22) is not removable and such that an interface is defined having an air gap formed between the coils and the rotor, retaining the rotor substantially concentric to the plurality of coils such that the air

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gap is maintained. Also disclose that the rotor have a field winding mounted on a loom such that the winding enclose the rotor and the yoke which is basically

Shramo disclose a housing (30) defining an interface (32) for mechanically and electrically mating with a power module, a brush Dc motor operable in a pre-selected voltage range to convert electrical power to mechanical power, the brushless DC motor comprising; a rotor assembly including a rotatable shaft and a permanent magnet affixed to the shaft; a slotless wound stator (24) including a winding form that encircles the rotor assembly, said coil being wound about an outer surface (66) of the winding form and the rotor assembly, and a plurality of coils (22) for producing a magnetic field for applying torque to the rotor assembly, said coils being wound about an surface of the winding form, and a stator stack (24) made of stator magnetic material for providing a magnetic flux path, and a power supply module mechanically and electrically configured to connect to a source of electric power and to mate with the low-voltage DC power tool, said power supply being adapted to provide a Dc voltage in the preselected voltage range suitable to powering the low-voltage Dc power tool.

Regarding to claim 32, Shramo discloses that the power supply module is a corded line power module mechanically and electrically configured to mate with the Dc power tool and being adapted to convert electric power from the source of electric power to a DC voltage in the preselected voltage range suitable for powering the low-voltage DC power tool

Regarding to claim 33, Shramo discloses that the coils include end turns that enclose the rotor assembly such that the rotor assembly is not removable

Regarding to claim 36, Shramo discloses that the coils are wound in the three-phase winding configuration selected from the group of, delta configuration and wye configuration.

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Regarding claim 38, Shramo discloses that the coils are layer wound.

Regarding to claim 39, Shramo discloses a controller for controlling the application of the electrical power to the brushless DC motor.

Claim 30, 32-33, 36, and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Shramo U.S. Patent No. 5,619,085.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 14-16 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman et al. U.S. Patent No. 5,907,205 in view of Philipp U.S. Patent No. 5,747,953.

Herman disclose a brushless DC Motor comprising a rotor assembly (22) including a rotatable shaft (24) having a permanent magnet (22) affixed to the shaft (24), a plurality of coils (30) including end turns that enclose the rotor assembly (22) such that the rotor assembly (22) is not removable and such that an interface is defined having an air gap formed between the coils and the rotor, retaining the rotor substantially concentric to the plurality of coils such that the air gap is maintained. Herman et al. substantially teaches the claimed invention except that it does not show that the coils are wound in a three phase winding configuration selected from the group of delta configuration and wye configuration, that the coils are connected in the delta configuration, a tool interface for interfacing the DC motor with a tool; nor a housing for

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enclosing the power module, controller and DC motor and a gear train coupled from the DC motor to the tool interface.

However, Philipp discloses that the coils are wound in a three phase winding configuration selected from the group of: delta configuration and wye configuration. Philipp discloses that the coils are connected in the delta configuration. Philipp discloses a tool interface for interfacing the DC motor with a tool; a housing for enclosing the power module, controller and DC motor. Philipp discloses a gear train coupled from the DC motor to the tool interface. Philipp's invention has the purpose of reducing vibration in the motor.

It would have been obvious at the time the invention was made to modify the DC motor disclosed by Herman et al. and provide it with winding configuration, tool

10. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman et al. U.S. Patent No. 5,907,205 in view of Philipp U.S. Patent No. 5,747,953 and further view of Isaacson U.S. Patent No. 5,205,721.

Herman et al. and Philipp substantially teaches the claimed invention except that it does not show that the winding form further includes a molded plastic end plug. Isaacson discloses that the winding form further includes a molded plastic end plug. Isaacson's invention has the purpose of eliminating the need to axially introduce the rotor into the stator bore.

It would have been obvious at the time the invention was made to modify the DC motor disclosed by Herman et al. and Philipp and provide it with the plug disclosed by Isaacson for the purpose of eliminating the need to axially introduce the rotor into the stator bore.

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11. Claims 24, 26-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herman et al. U.S. Patent No. 5,907,205 in view of David Halliday et al., Fundamentals of Physics, fifth edition.

Herman discloses that the rotor magnet is made of neodymium-iron-boron compound but other magnetic materials can be substituted for any one of a number of reasons such as cost and availability but doesn't show that the magnetic material is magnetize after winding the plurality of coil to form a permanent magnet (column 5, lines 10-13).

However, Halliday discloses that ferromagnetic material is consider a magnetic material and when a external field is applied to said ferromagnetic material align the magnetic moment of it, producing a strong magnetic field for the material as a whole.

Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify Herman's invention and made the rotor magnet of ferromagnetic material and magnetize said magnetic material after winding the plurality of coil to form a permanent magnet since was know in the art that applying a external field to ferromagnetic material can align the magnetic moment of it, producing a strong magnetic field for the material as a whole, cost less than a permanent magnet and availability.

12. Claims 31 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shramo U.S. Patent No. 5,619,085 in view of Philipp U.S. Patent No. 5,747,953.

Shramo substantially teaches the claimed invention except that it does not show that the battery power supply module is a cordless battery power module. Philipp discloses that the battery power supply module is a cordless battery power module. Philipp's invention has the purpose of reducing vibration in the motor

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It would have been obvious at the time the invention was made to modify the DC motor disclosed by Shramo and provide it with the battery power supply module disclosed by Philipp for the purpose of reducing vibration in the motor.

13. Claim 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shramo U.S. Patent No. 5,619,085 in view of Isaacson U.S. Patent No. 5,205,721.

Shramo substantially teaches the claimed invention except that it does not show that the winding form further includes a molded plastic end plug.

However, Isaacson discloses that the winding form further includes a molded plastic end plug. Isaacson's invention has the purpose of eliminating the need to axially introduce the rotor into the stator bore.

Therefore, It would have been obvious at the time the invention was made to modify Shramo invention and provide it with the plug disclosed by Isaacson for the purpose of eliminating the need to axially introduce the rotor into the stator bore.

14. Claim 50-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shramo et al. U.S. Patent No. 5,907,205 in view of Isaacson U.S. Patent No. 5,205,721.

Herman disclose a brushless DC Motor comprising a rotor assembly (22) including a rotatable shaft (24) having a permanent magnet (22) affixed to the shaft (24), a plurality of coils (30) including end turns that enclose the rotor assembly (22) such that the rotor assembly (22) is not removable and such that an interface is defined having an air gap formed between the coils and the rotor, retaining the rotor substantially concentric to the plurality of coils such that the air gap is maintained. Herman et al. substantially teaches the claimed invention except that for applying a seal to the interface such that the air gap is sealed.



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However, Isaacson discloses that the seal (25) is adapted to contact the end plug and the end bell, thereby blocking off the air gap between the plurality of coils and the rotor. Isaacson's invention has the purpose of eliminating the need to axially introduce the rotor into the stator bore.

It would have been obvious at the time the invention was made to modify the DC motor and method of manufacturing disclosed by Herman et al. and provide it with the plug and seal disclosed by Isaacson et al. for the purpose of eliminating the need to axially introduce the rotor into the stator bore.

### *Conclusion*

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yahveh Comas whose telephone number is (703) 305-3419. The examiner can normally be reached on M - F 8:00am - 4:00pm.

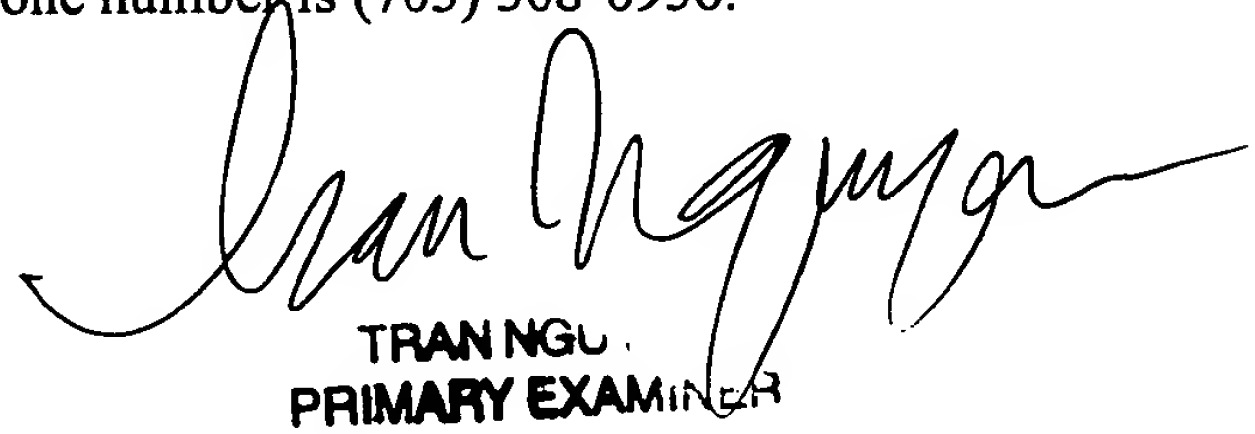


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

YC



TRAN NGU  
PRIMARY EXAMINER